

# MANUFACTURING EXTENSION PARTNERSHIP

## Success Stories from the Field

### Ultradent Products Inc.

#### Utah Manufacturing Extension Partnership

#### Ultradent Cleans Up the Savings with Lean Manufacturing

##### Client Profile:

Ultradent has been committed to excellence and quality for the past 25 years. They are a small company with 400 employees at the facility located in South Jordan, Utah. Ultradent got its start as Dr. Dan E. Fischer began a quest to create more effective dental products. The popularity of Dr. Fischer's products was rapid because they were unique from anything else on the market, and they were very effective. Today Dr. Fischer is one of the most recognized personalities in the dental world. His company, Ultradent, manufactures and packages more than 1500 materials, devices, and instruments used by dentists, laboratories, government agencies, and universities. Ultradent also holds many patents and trademarks. They have become one of the first companies to manufacture syringe-packaged materials and have an injection molding facility to provide a variety of plastic devices for other companies. These products range from syringe tips, to components for artificial hearts, to stackable plastic trays.

##### Situation:

Ultradent became acquainted with the Utah Manufacturing Extension Partnership (MEP), a NIST MEP network affiliate, through a student that was taught at Brigham Young University by the MEP's Engineer, Dan Manning. When Ultradent's management started to discuss how they wanted to become more lean, the student referred Ultradent to the MEP.

##### Solution:

MEP's engineer, Dan Manning, went on site at Ultradent and conducted several lean classes for their employees. Ultradent management liked the information that their class was given, and they wanted to continue with the lean training. So they invited the MEP to move to the next lean step, which is a Value Stream Mapping. This involves implementing the lean concepts by finding the quickest and most efficient way to deliver each step of the manufacturing process. During the Value Stream Mapping, the MEP's Engineer and the Ultradent employees identified several areas where their processes could be sped up. In lean training, one of the most important concepts taught is that of Single Minute Exchange of Die (SMED) in which there are internal changes (when a specific machine must be shut down completely), and there are external changes (the prepping that can be done before the assembly line is shut down). Very few external changes were being performed at Ultradent, and this was one of the ways to speed the process up and help it become lean. For example, the team found that one point they changed the flavor of their teeth whitening formula from mint to watermelon. In order for the flavors not to mix, the assembly line had to be shut down, and the old pot had to be taken out and cleaned and then returned to its place. Then the platen, which expresses the formula out of the pot and into the syringes, also had to be cleaned. This platen was difficult and time consuming to wash. By applying lean principles, it was discovered that they could cut the changeover time from 72 minutes to 16 minutes by doing two things. First they used their external/prepping time more efficiently by having two pots so that one could be changed out immediately, and then the line could be shut

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down for only a short time to install the clean pot. Then the line would start up and the dirty pot could be taken back and washed while the line was running again. Secondly, a plastic cover was created for the platen so that it could simply be discarded and thrown away when they desired to change flavors.

### Results:

- \* Reduced changeover time in moving from one flavor to another by 78 percent, from 72 minutes to 16 minutes.
- \* Increased production of syringes by 27,000 per week.
- \* Achieved savings of \$1,200 per week.
- \* Increased employee satisfaction.

### Testimonial:

"The MEP has provided Ultradent with the knowledge and direction necessary to make small investments turn into very large savings. It is estimated that the investment in the SMED activity will pay itself off in only three weeks and it will continue to provide savings to our company."

Brent Drennan, Manufacturing Engineer